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Oil Spills, 1976-85: Statistical Report

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Introduction

Oil spillage resulting from drilling and production activities on the Outer Continental Shelf (OCS) is a matter of wide public concern. Each year, the Minerals Management Service (MMS) receives a large number of requests for information regarding oil spills. The purpose of this report is to provide a complete and accurate statistical account of all the oil spills reported relative to oil and gas operations on the OCS. This report is prepared especially with those in mind who are concerned with accident prevention utilizing the various kinds of analyses and preaccident investigation techniques.

The accidents included in this report occurred during the period January 1, 1976, to December 31, 1985. They include all reports of accidents occurring on the OCS resulting in spills of 1 barrel or more due to oil and gas operations. This report is a continuation of the data presented in Geological Survey Circular 741, 1971-1975.

The Secretary of the Department of the Interior is authorized by the OCS Land Act to grant mineral leases on OCS lands and to prescribe such regulations as are necessary to carry out the provisions of the Act. Regarding offshore accidents, the OCS Lands Act requires the Secretary to investigate and prepare a public report on each major fire, each major oil spillage, or any death or serious injury occurring as a result of offshore drilling and production operations. In accordance with the Act, a major oil spillage is any spillage in one instance of more than 200 barrels of oil during a period of 30 days. A serious injury is one resulting in substantial impairment of any bodily unit or function. The Act requires all holders of

leases or permits to cooperate with the Secretary in the course of any investigation.

The Secretary has delegated authority to the Director of the Minerals Management Service to supervise the day-to-day activities of drilling and production operations for oil and gas on the OCS. The MMS has issued regulations and orders requiring operators to report all accidents. As such, all spills of oil and liquid pollutants are required to be reported orally to the District Supervisor and confirmed in writing. The report must include the cause, location, volume of spill, and action taken. In the case of spills greater than 31.5 barrels, the sea state, meteorological conditions, and size and appearance of the slick must also be included in the report.

Source of data

The primary source of the data presented in this report is the OCS Events File. The OCS Events File uses the General Information Processing System (GIPSY), an information-handling system developed at the University of Oklahoma. The file contains information on blowouts, fires, explosions, vessel mishaps, casualty, and other accidents. It is maintained by the Gulf of Mexico OCS Region where data is entered on a routine basis.

Reliability of data

The MMS relies on the oil and gas operators to comply with the Laws, Regulations, Orders, and Standards written to govern oil and gas operations on the OCS. The Orders require the operators conducting oil and gas operations to report the information regarding spills promptly, accurately, and

completely. Most of the data contained in this report is obtained from the investigation and subsequent reports by the operators.

The volume of spills is estimated by various methods, such as volume changes in production-equipment contents, known flow rates, and slick size and appearance. Most of the spill volumes have been obtained by estimating the size of the slick or measuring losses from known volume containers.

Presentation of data

The data in this report are presented in tables and figures showing relationships between number of spills, volume of spills, accident years, cause of spills, location of spills, type of operations, and amount of production.

The statistics in the tables and graphs are derived primarily from the OCS Events File. They summarize the spills that MMS has recorded. The statistics are not an evaluation of the systems that allowed the accidents to occur.

In many of the tables there are entries marked "other" and "unknown". The code "other" means something other than those listed above. The code "unknown" means that the data source gives no information or insufficient information. Dashes within columns mean there is no data available.

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Tables and Figures

Table 1.--Annual number of new well starts on the
Outer Continental Shelf, 1976-85

Calendar year	Gulf of Mexico OCS Region	Pacific OCS Region	Alaska OCS Region	Atlantic OCS Region
1976	1,021	18	2	-
1977	1,155	58	7	-
1978	1,097	34	5	12
1979	1,097	32	5	16
1980	1,063	50	2	4
1981	1,052	59	2	6
1982	1,069	85	2	4
1983	981	81	2	2
1984	1,057	63	16	2
1985	983	40	17	0

Table 2.--Annual production (million barrels) of oil and condensate
from all operations on the Outer Continental Shelf, 1976-85

Calendar Year	Gulf of Mexico OCS Region	Pacific OCS Region	Alaska OCS Region	Atlantic OCS Region
1976	302.94	13.98	0	0
1977	291.68	12.26	0	0
1978	280.17	12.08	0	0
1979	274.60	10.96	0	0
1980	267.19	10.19	0	0
1981	270.16	19.60	0	0
1982	292.77	28.43	0	0
1983	310.53	30.16	0	0
1984	339.98	30.25	0	0
1985	359.54	29.78	0	0

Table 3.--Number and volume of spills greater than 1 barrel,
by type of substance spilled, Gulf of Mexico, 1976-85

<u>Year</u>	<u>Crude</u>	<u>Condensate</u>	<u>Diesel</u>	<u>Other</u>
Number of spills				
1976	58	2	9	1
1977	59	1	11	3
1978	60	2	13	5
1979	93	1	20	4
1980	40	2	13	4
1981	47	3	11	9
1982	38	4	15	16
1983	56	3	21	20
1984	44	3	4	9
1985	36	2	15	18
Volume of spills (barrels)				
1976	4,735	5	355	8
1977	915	4	89	74
1978	1,375	7	128	14
1979	534	2	2,152	13
1980	1,671	104	1,088	58
1981	5,484	19	103	188
1982	114	10	974	77
1983	506	14	934	1,099
1984	215	9	118	39
1985	512	69	899	133

Table 4.--Total number of spills reported to the Minerals Management Service, by Outer Continental Shelf Region, 1976-85

Year	Spills 1 barrels or less	Spills more than 1 barrel		Total
		Number	Volume	
Gulf of Mexico				
1976	818	70	5,103	888
1977	693	74	1,082	767
1978	796	82	1,528	878
1979	596	118	2,700	714
1980	607	59	2,922	666
1981	620	70	5,793	690
1982	1,063	73	1,175	1,136
1983	1,255	100	2,552	1,356
1984	1,057	60	380	1,117
1985	1,085	71	1,613	1,156
Pacific				
1976	--	--	--	--
1977	--	--	--	--
1978	--	--	--	--
1979	0	0	--	0
1980	6	1	2	7
1981	13	6	32	19
1982	21	3	8	24
1983	59	3	4	62
1984	69	5	40	74
1985	55	3	9	58
Alaska				
1976	--	--	--	--
1977	--	--	--	--
1978	--	--	--	--
1979	--	--	--	--
1980	--	--	--	--
1981	--	--	--	--
1982	--	--	--	--
1983	0	0	--	0
1984	0	0	--	0
1985	7	1	2	8
Atlantic				
1976	--	--	--	--
1977	--	--	--	--
1978	--	--	--	--
1979	--	--	--	--
1980	--	--	--	--
1981	--	--	--	--
1982	--	--	--	--
1983	5	2	24	7
1984	6	0	--	6
1985	8	0	--	8

Table 5.--Number and volume of spills each year, Gulf of Mexico, Outer Continental Shelf, 1976-85

Year	Spills of <u>1/</u> 1-50 (barrels)	Spills of 51-1000 (barrels)	Spills of more than 1000 (barrels)	Total
Number of spills				
1976	66	3	1	70
1977	71	3	0	74
1978	79	3	0	82
1979	114	3	1	118
1980	50	8	1	59
1981	65	4	1	70
1982	70	3	0	73
1983	91	9	0	100
1984	59	1	0	60
1985	66	5	0	71
Total volume (barrels) of spills				
1976	307	796	4,000	5,103
1977	462	620	0	1,082
1978	389	1,139	0	1,528
1979	654	546	1,500	2,700
1980	296	1,170	1,456	2,922
1981	365	328	5,100	5,793
1982	332	842	0	1,174
1983	613	1,939	0	2,552
1984	280	100	0	380
1985	419	1,194	0	1,613

1/ Spills less than or equal to 1 barrel not included.

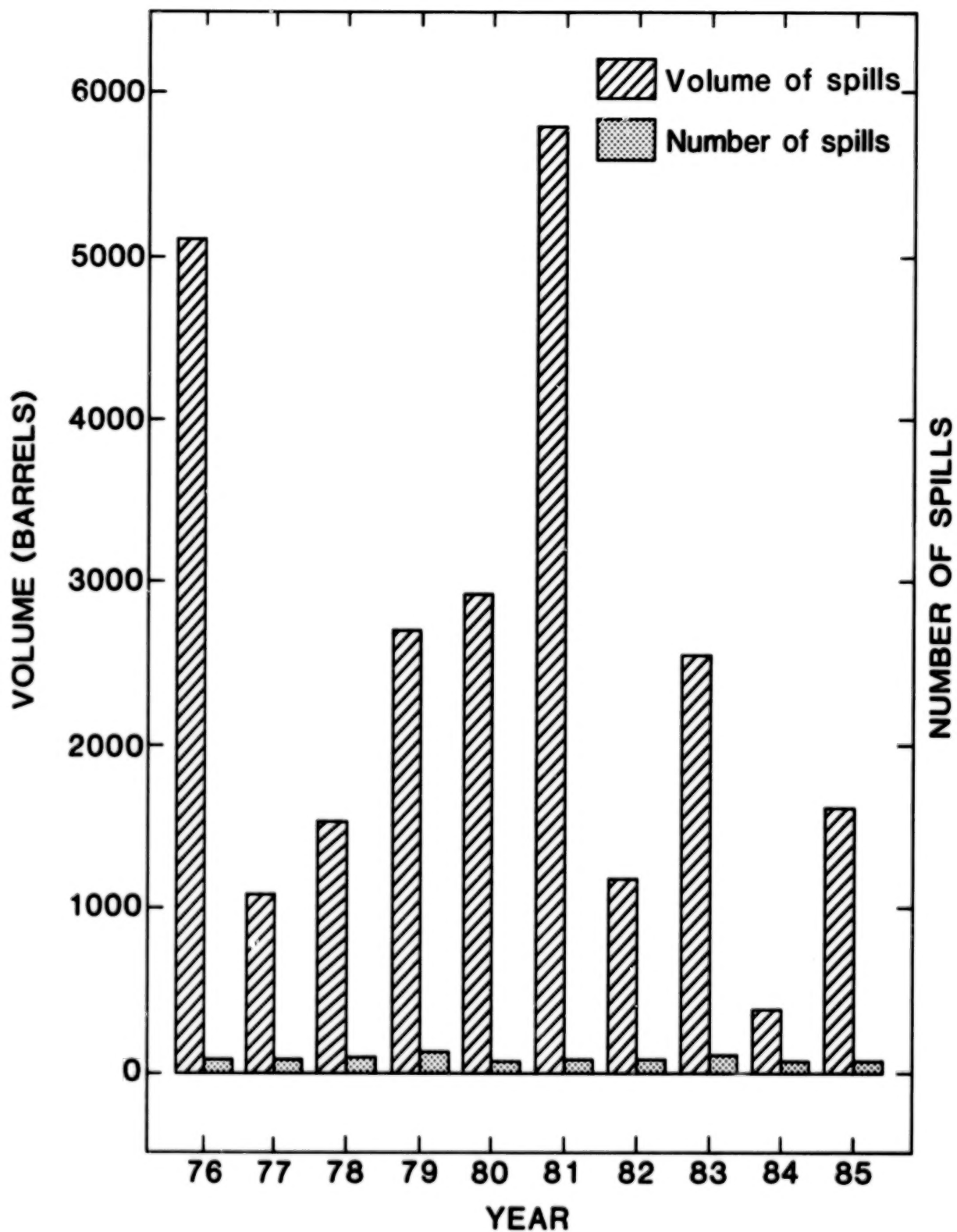


Figure 1.--Number and volume of spills greater than one barrel, by year, Gulf of Mexico, 1976-85.

Table 6.--Number of spills vs. number of "new well starts"
during drilling operations, Gulf of Mexico, 1976-85

Year	New well starts	Number of spills	Volume spilled (barrels)	Percentage of spills per "well start"
1976	1,021	5	36	.48
1977	1,155	10	114	.86
1978	1,097	8	57	.72
1979	1,097	19	1,147	1.73
1980	1,063	12	273	1.12
1981	1,052	8	227	.76
1982	1,069	25	957	2.33
1983	981	33	1,624	3.36
1984	1,057	5	115	.47
1985	983	24	949	2.44

Table 7.--Volume of oil produced vs. volume of oil (crude and condensate) spilled, Gulf of Mexico, 1976-85

Year	Oil production (million barrels)	Number of spills	Volume spilled (barrels)	Percentage of production spilled
1976	302.94	61	4722	.00156
1977	291.68	53	599	.00021
1978	280.17	65	1373	.00049
1979	274.60	93	469	.00017
1980	267.19	45	1769	.00066
1981	270.16	43	289	.00011
1982	292.77	44	98	.00003
1983	310.53	64	349	.00011
1984	339.98	54	221	.00007
1985	359.54	45	579	.00016

Table 8.--Number and volume of spills of 1-50 barrels, by principal operational phase, Gulf of Mexico, 1976-85 1/

Operational Phase	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
Number of spills										
Drilling (mobile)	2	7	4	4	5	5	3	12	4	15
Drilling (fixed)	3	2	4	13	5	2	19	16	0	6
Completions/workovers	2	7	5	4	0	2	1	1	0	1
Production	57	52	62	91	39	41	44	61	54	43
Abandonment	1	0	0	0	0	0	0	0	0	0
Other	1	3	1	0	1	5	2	1	0	1
Unknown	0	0	3	2	0	10	1	0	1	0
Volume of spills										
Drilling (mobile)	18	33	12	76	14	94	38	100	15	112
Drilling (fixed)	18	11	45	51	61	8	78	108	0	29
Completions/workovers	11	21	11	18	0	4	3	2	0	5
Production	242	341	305	450	219	161	200	372	263	271
Abandonment	3	0	0	0	0	0	0	0	0	0
Other	15	56	10	0	1	25	11	30	0	2
Unknown	0	0	6	60	0	76	2	0	2	0

1/ Table includes spills greater than 1 barrel but less than or equal to 50 barrels.

Table 9.--Number and volume of spills greater than 50 barrels, by principal operational phase, Gulf of Mexico, 1976-85

Operational Phase	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
Number of spills										
Drilling (mobile)	0	1	0	2	2	0	1	3	0	2
Drilling (fixed)	0	0	0	0	0	1	2	2	1	1
Completions/workovers	4	0	0	0	0	1	0	0	0	0
Production	0	1	3	2	6	2	0	3	0	2
Abandonment	0	0	0	0	0	0	0	0	0	0
Other	0	1	0	0	1	1	0	1	0	0
Unknown	0	0	0	0	0	0	0	0	0	0
Volume of spills										
Drilling (mobile)	0	70	0	1,821	198	0	214	1,220	0	701
Drilling (fixed)	0	0	0	0	0	126	628	195	100	107
Completions/workovers	0	0	0	0	0	64	0	0	0	0
Production	4,796	300	1,139	225	2,170	138	0	399	0	386
Abandonment	0	0	0	0	0	0	0	0	0	0
Other	0	250	0	0	258	5,100	0	125	0	0
Unknown	0	0	0	0	0	0	0	0	0	0

Table 10.--Causes of spills greater than 50 barrels,
Gulf of Mexico, 1976-85

Cause (Specific)	Number of Occurrences	Total volume (barrels)	Volume (barrels) per spill	
			Maximum	Minimum
Influx of fluid into wellbore	1	64	64	64
Flowline ruptured	1	80	80	80
High-low level control failed	1	60	60	60
Leak in tank or line	1	320	320	320
Tank ruptured	2	245	150	95
Pipeline ruptured	3	9,350	5,100	250
Pipeline leaked	6	2,114	900	80
Discharge line ruptured	11	1,727	321	58
Fuel line leaked	1	200	200	200
Disregarded SOP	1	58	58	58
Employee negligence	3	456	286	70
Error in judgement	1	95	95	95
Miscellaneous equipment failure	10	1,642	837	58
Collision	1	1,500	1,500	1,500
Storm or hurricane	1	1,456	1,456	1,456
Other	12	8,826	5,100	80
By system, operation, etc.				
Drilling, completion or workover	5	1,080	800	64
Well and header system	1	80	80	80
Separator system	1	60	60	60
Other vessels and tanks	5	2,125	1,456	95
Pipeline and pumps	25		4,000	58
Employee error	8	1,220	286	58
Miscellaneous equipment failure	10	1,642	643	58
Natural event	2	1,621	1,456	165

Table 11.--Oil spills greater than 1,000 barrels, Gulf of Mexico, 1976-85

Date	Location	Volume spilled (barrels)	Cause
December 18, 1976	Eugene Island, Block 297	4,000	Shrimp trawl dragged across pipeline pulling loose valve and nipple.
November 23, 1979	Main Pass, Block 151 OCS-G 2951	1,500	MV "State Command" struck rig while retrieving rig's anchors in rough seas.
November 13, 1980	OCS-G 1831	1,456	Pump failed due to stuck contact points in switch box during preparation for evacuation for hurricane.
December 11, 1981	South Pass, Block 70	5,100	Pipeline ruptured during attempt to dislodge anchor.

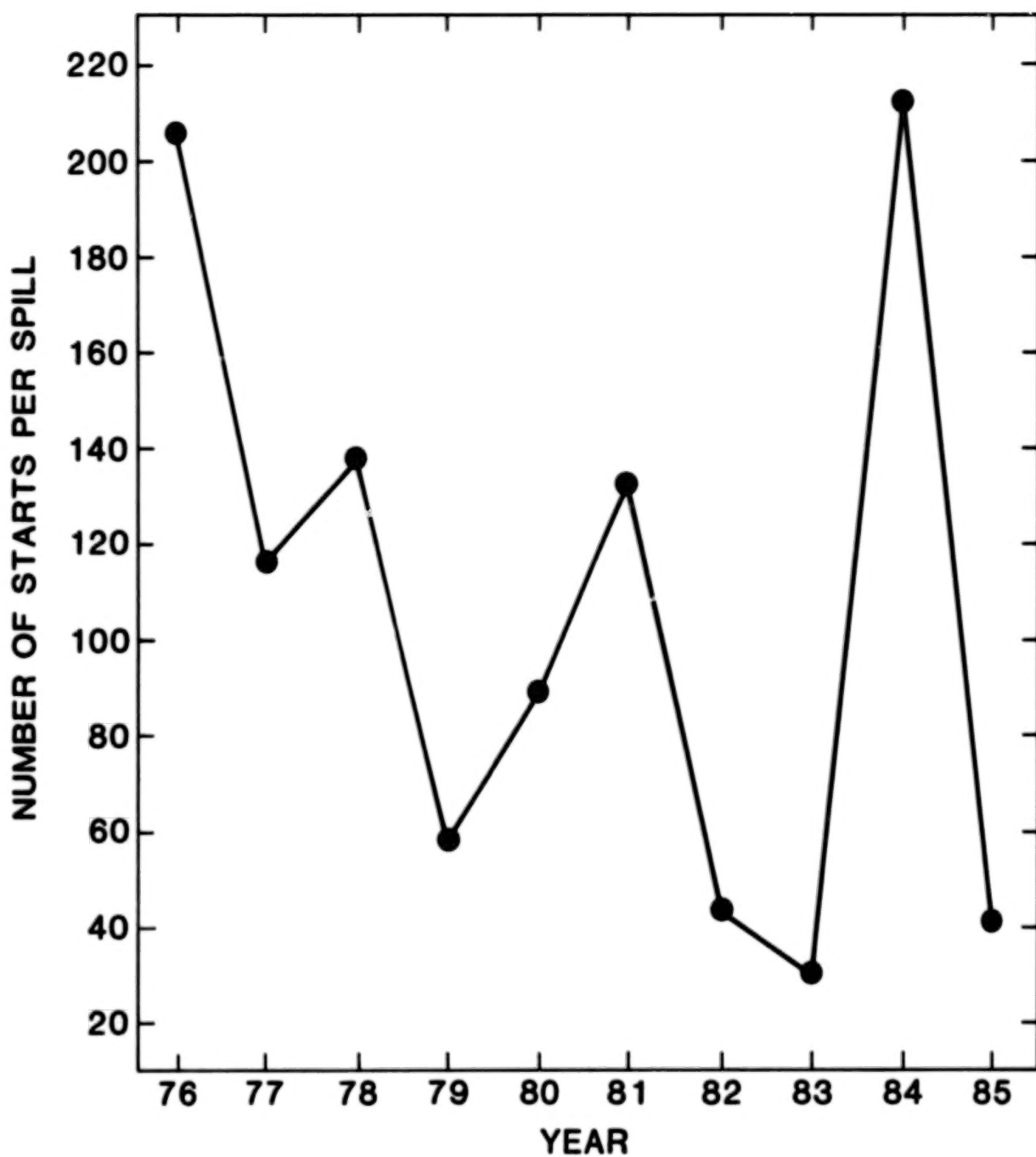


Figure 2.--New well starts vs. number of spills greater than one barrel, Gulf of Mexico, 1976-85.

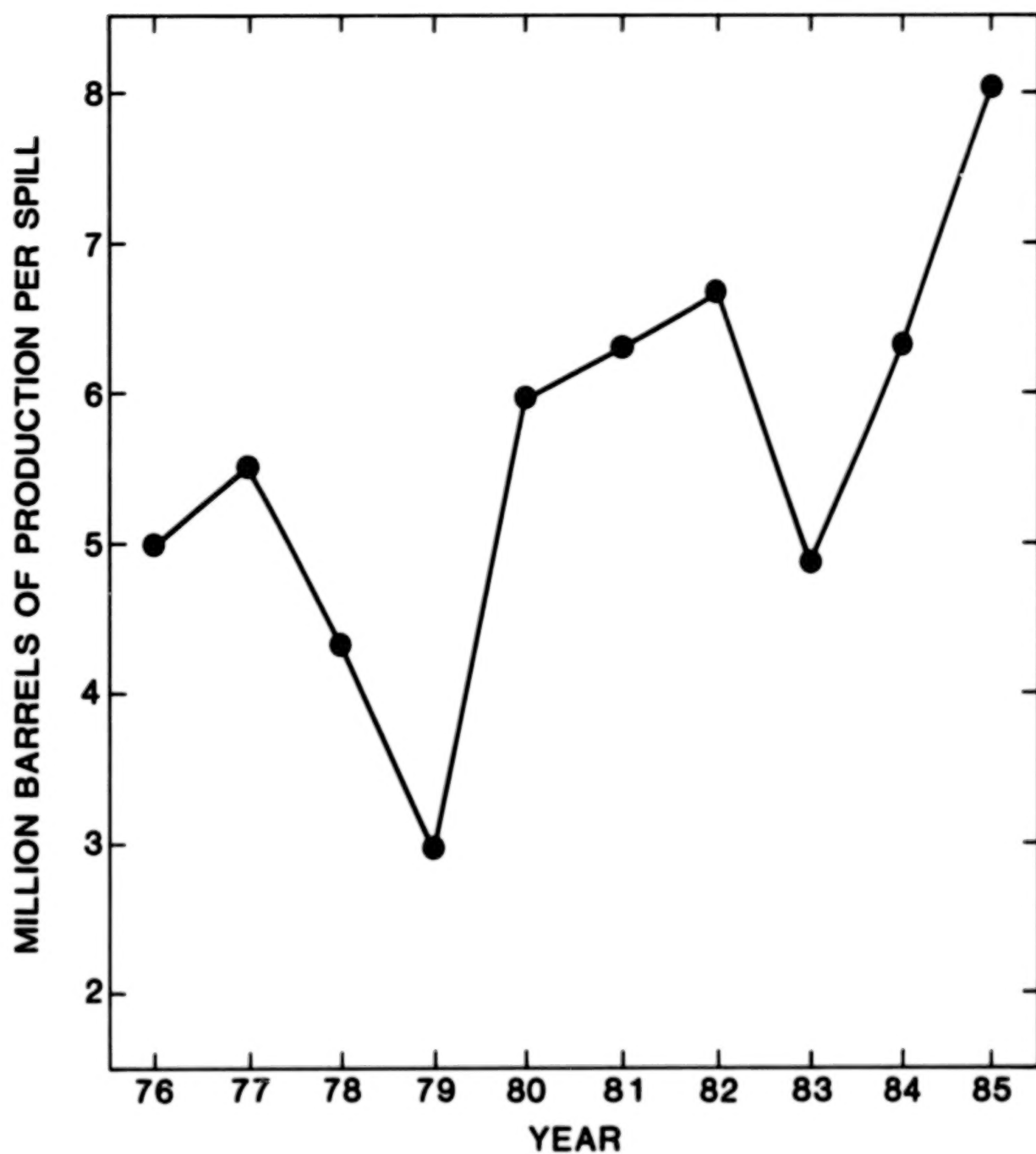


Figure 3.--Barrels of production vs. number of spills greater than 1 barrel, Gulf of Mexico, 1976-85.

Table 12.--Blowouts resulting in pollution, casualties, or property damage, Gulf of Mexico, 1976-85

Date	Location	Type of accident	Volume spilled (barrels)	Casualties, property damage
Blowouts during drilling				
September 19, 1977	Vermilion, Block 25, OCS-G 3390	Blowout.	0	Derrick, draw-works, and other wellhead equipment destroyed.
March 15, 1978	West Delta, Block 79, OCS-G 1874	Blowout.	0	Some damage to drilling rig; one person received minor injury.
April 21-22, 1979	Vermilion, Block 25, OCS-G 3390	Gas blowout, fire.	0	Rig completely destroyed; small visible slick resulted.
March 24, 1980	High Island, Block 368, OCS-G 2433	Gas blowout while drilling.	0	Major property damage; 29 injured, 6 fatalities.
August 30, 1980	Sabine Pass, Block 11 OCS-G 4191	Blowout while pulling out of hole.	0	Minor oil slick; 9 injured.
August 30- September 1, 1980	Matagorda Island, Block 669, OCS-G 4065	Blowout while run- ning pipe in the hole.	0	Major property damage; 6 injured, 5 fatalities.
January 12-13, 1981	High Island, Block 038 OCS-G 4077	Blowout while drilling.	0	Major damage to rig and barge; 2 injured, 1 fatality.
July 26, 1981	South Pelto, Block 018 OCS-G 3589	Blowout while cut- ting mud weight.	0	Two men injured while evacuating platform rig.
May 14, 1982	South Timbalier, Block 155, OCS-G 4240	Blowout coming out of hole; well depth 3,321 ft.	0	Minor damage; 4 injured.
May 15, 1982	South Marsh, Island, Block 018, OCS-G 4110	Blowout while drill- ing below 9,000 ft.	0	Some fire damage, 3 injured.
October 21, 1982	Eugene Island, Block 361, OCS-G 2342	Blowout during drilling.	0	Drilling rig and quarters destroyed.

Table 12.--Blowouts resulting in pollution, casualties, or property damage,
Gulf of Mexico, 1976-85---continued

Date	Location	Type of accident	Volume spilled (barrels)	Casualties, property damage
Blowouts during nondrilling operations				
March 16, 1977	West Cameron, Block 165, OCS-G 0758	Blowout while attempting to kill well to make repairs	2	None recorded.
November 28, 1981	Viosca Knoll, Block 900, OCS-G 2445	Blowout occurred while removing pipe from hole. Blowout preventers failed to hold back escaping gas.	64	None recorded.
June 28, 1983	Main Pass, Block 073, OCS-G 2947	Flapper on SCSSV broke from impact of falling fish.	0	2 injured.
February 23, 1985	West Delta, Block 90, OCS-G 1089	Blowout, spill.	40	None.

Table 13.--Causes of spills of 1-50 barrels, Gulf of Mexico, 1976-85

Cause	Number of occurrences	Volume (barrels)	Volume per spill (barrels)	
			Maximum	Minimum
Drilling completion or workover	50	209	24.0	1.5
Well and header system	38	216	40.0	1.4
Separator system	72	281	20.0	1.4
Flare line system	32	144	20.0	1.5
Heater-treater system	37	169	25.0	1.1
Other vessels and tanks	94	734	50.0	1.1
Sump system	141	494	21.4	1.1
Pipeline and pumps	195	1347	50.0	1.1
Cables and chains	3	12	5.0	2.0
Employee error	93	670	48.0	1.1
Unknown	9	31	5.5	1.5
Miscellaneous equipment failure	69	507	38.0	1.4
Natural event	9	47	10.0	2.0

Table 14.--Causes of spills of 1-50 barrels during production operations, Gulf of Mexico, 1976-85

System that failed	Number of occurrences	Volume (barrels)	Volume (barrels) per spill		
			Average	Maximum	Minimum
Sump system	131	457	3.5	21.4	1.5
Other hydrocarbon-handling equipment	35	142	4.1	15.0	1.1
Separator system	72	281	3.9	20.0	1.4
Well and header system	36	210	5.8	40.0	1.4
Flare line system	32	144	4.5	20.0	1.5
Heater-treater system	35	142	4.1	15.0	1.1

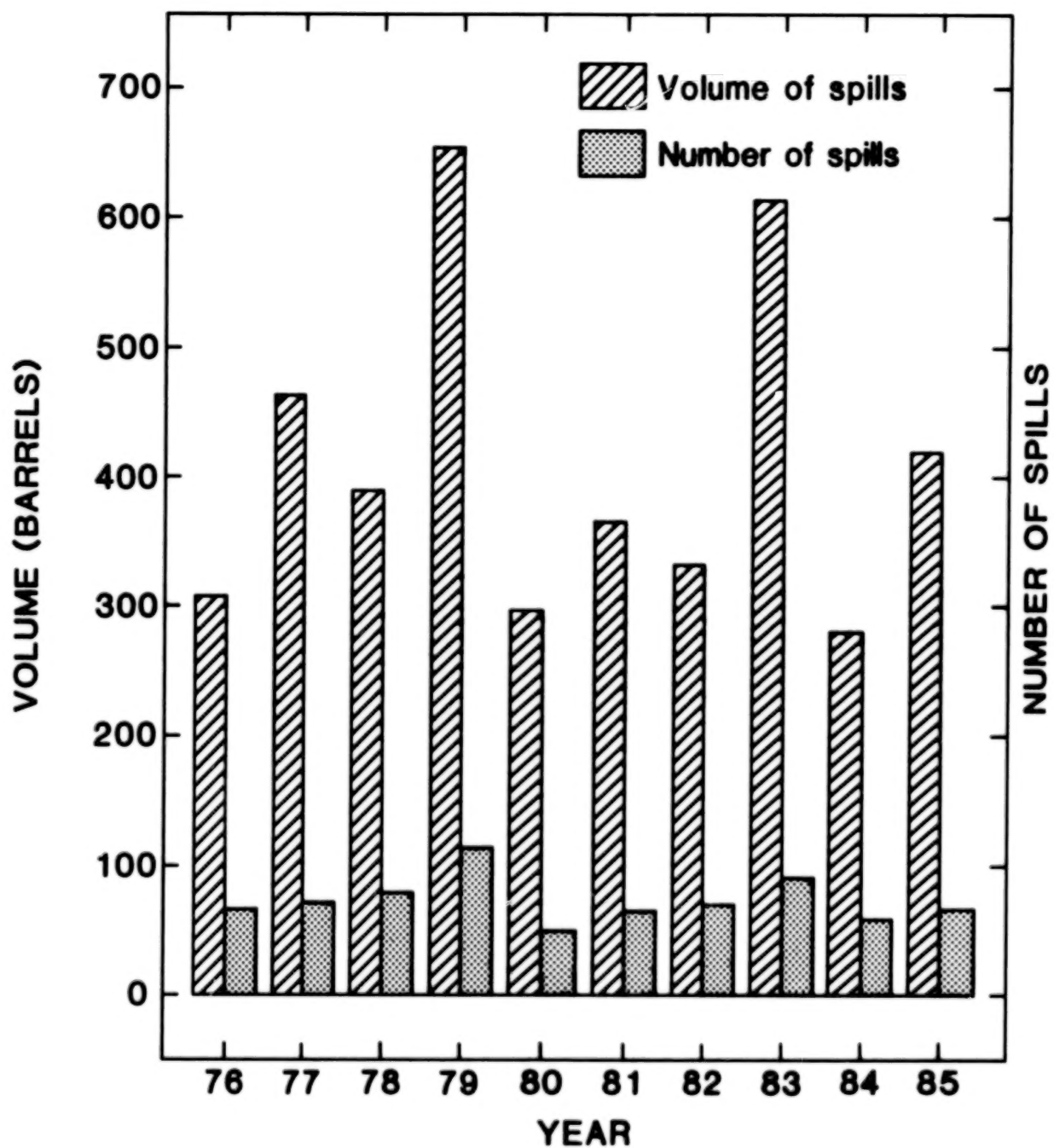


Figure 4.--Number and volume of spills of 1-50 barrels, by year, Gulf of Mexico, 1976-85.

Table 15.--Causes of spills of 1-50 barrels during Production Operations,
by system failure, Gulf of Mexico, 1976-85

Specific cause	Number of occurrences	Volume (barrels)	Volume (Barrels) per spill		
			Average	Maxi- mum	Mini- mum
Sump system					
Sump carried under or overfilled	58	191	3.3	21.4	1.5
Sump pump failed	23	68	2.9	5.0	1.5
High-level control failed	11	55	5.0	16.0	2.0
Skimmertank high-level control failed	7	26	3.8	12.5	1.5
Pump intake clogged	3	8	2.7	4.0	2.0
Sump system leaked	10	55	5.6	20.0	2.0
Other	16	46	2.9	6.0	1.5
Separator system					
High-low level control failed	22	82	3.7	20.0	1.5
Dump valve failed	17	69	4.0	20.0	1.4
High-low pressure sensor failed	2	18	9.0	16.0	2.0
Separation vessel or lines leaked	2	10	5.3	8.0	2.5
Relief valve failed	5	13	2.6	3.5	1.5
Discharge line ruptured	1	2	2.0	2.0	2.0
Other	20	81	4.1	15.0	1.5
Other hydrocarbon-handling equipment					
High-low level control failed	15	147	9.8	45.0	2.0
Dump valve failed	2	4	2.0	2.0	2.0
Tank or line leaked	11	98	8.9	47.0	2.0
Discharge line ruptured	1	2	2.0	2.0	2.0
Discharge line plugged	1	3	3.0	3.0	3.0
Tank ruptured	2	7	3.5	5.0	2.0
Valve leaked or cutout	3	9	3.0	4.0	2.0
High-low pressure sensor failed	3	19	6.3	13.0	3.0
Sight tube loosened	2	7	3.5	5.0	2.0
Bull plug broke	0	0	0.0	0.0	0.0
Relief valve failed	2	5	2.5	3.0	2.0
Other	35	286	8.2	50.0	1.1

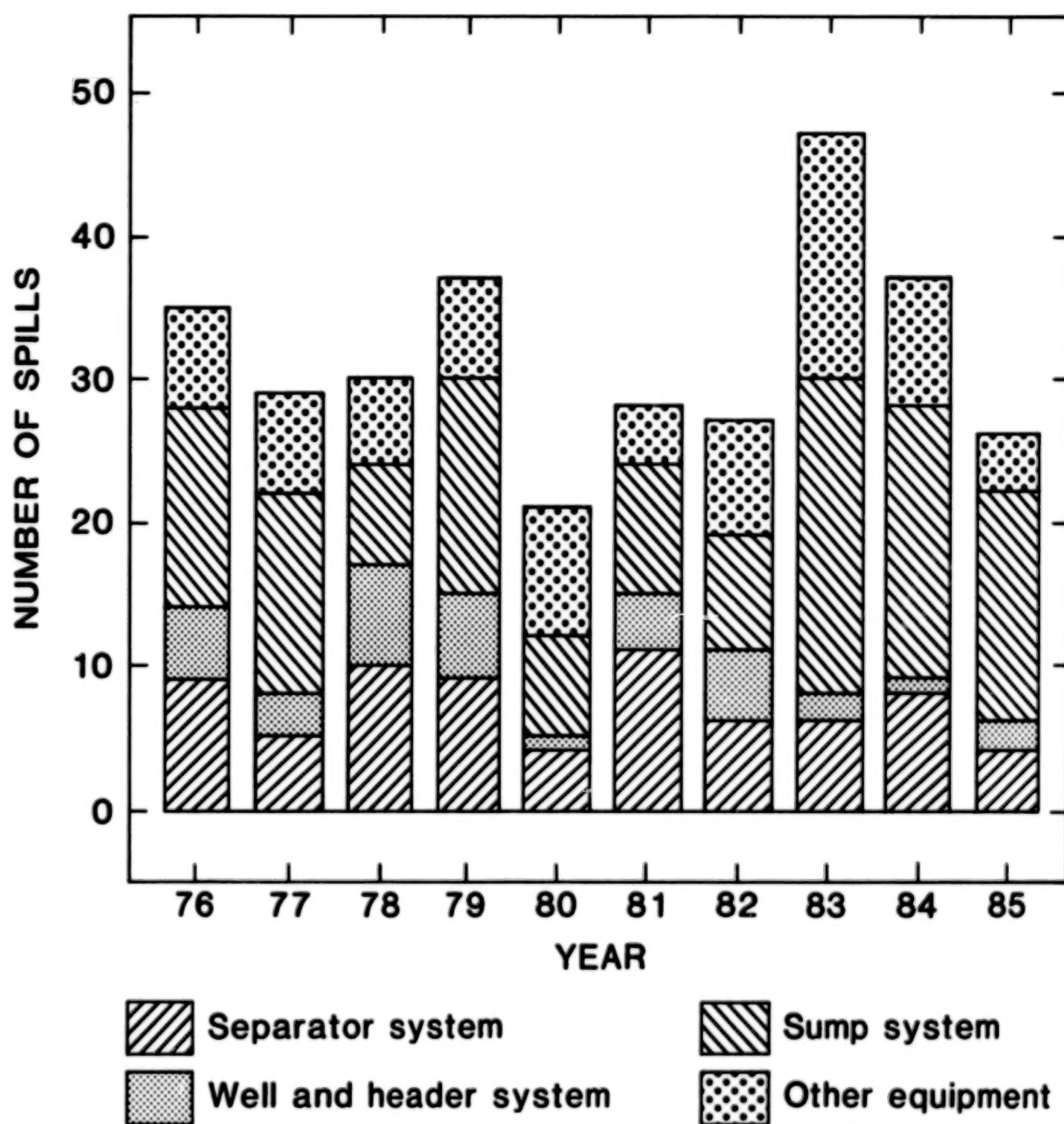


Figure 5.--Principal causes of production platform spills of 1-50 barrels, by year and number of spills, Gulf of Mexico, 1976-85.

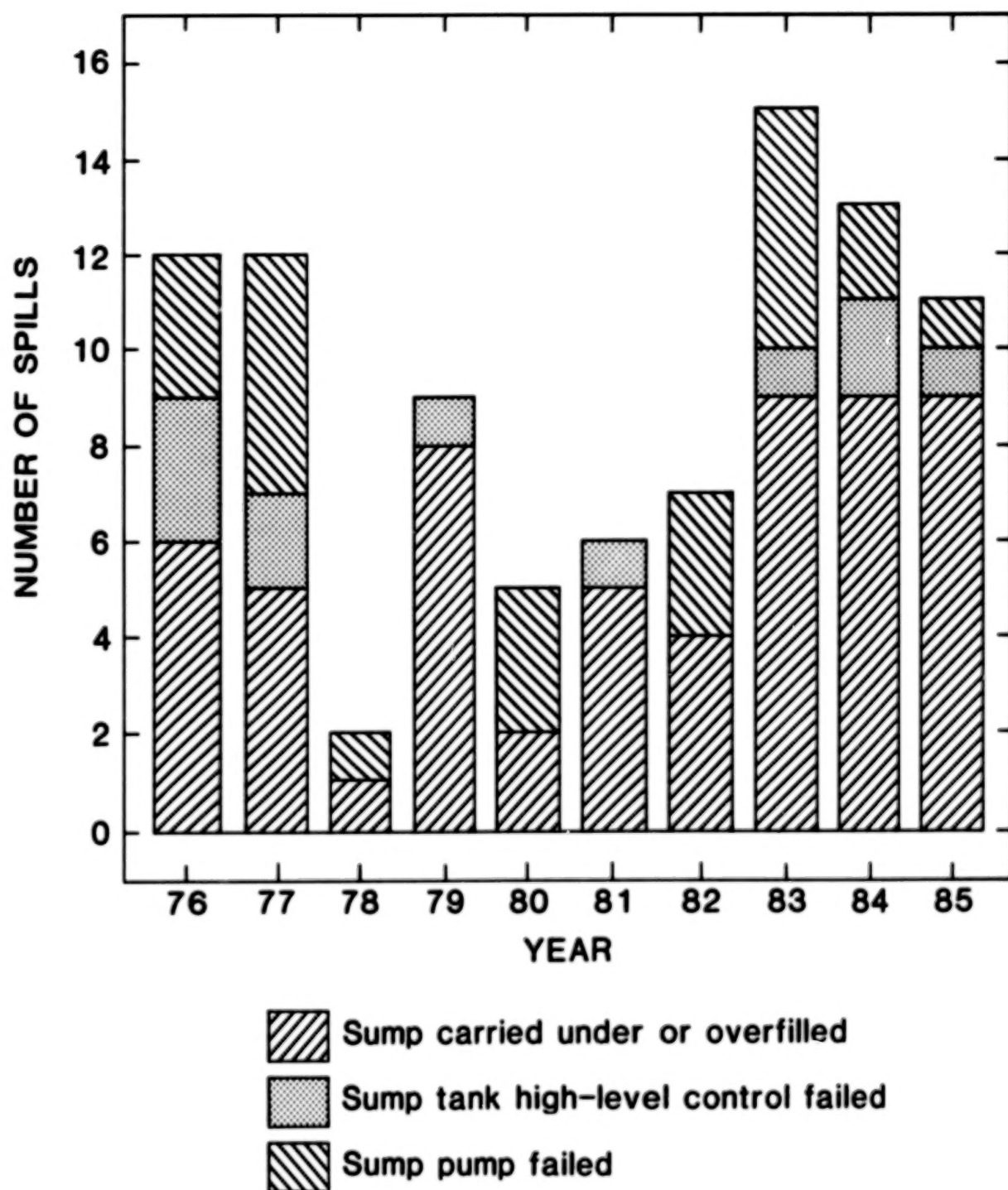


Figure 6.—Principal causes of sump-system spills of 1–50 barrels on production platforms, by year and number of spills, Gulf of Mexico, 1976–85.

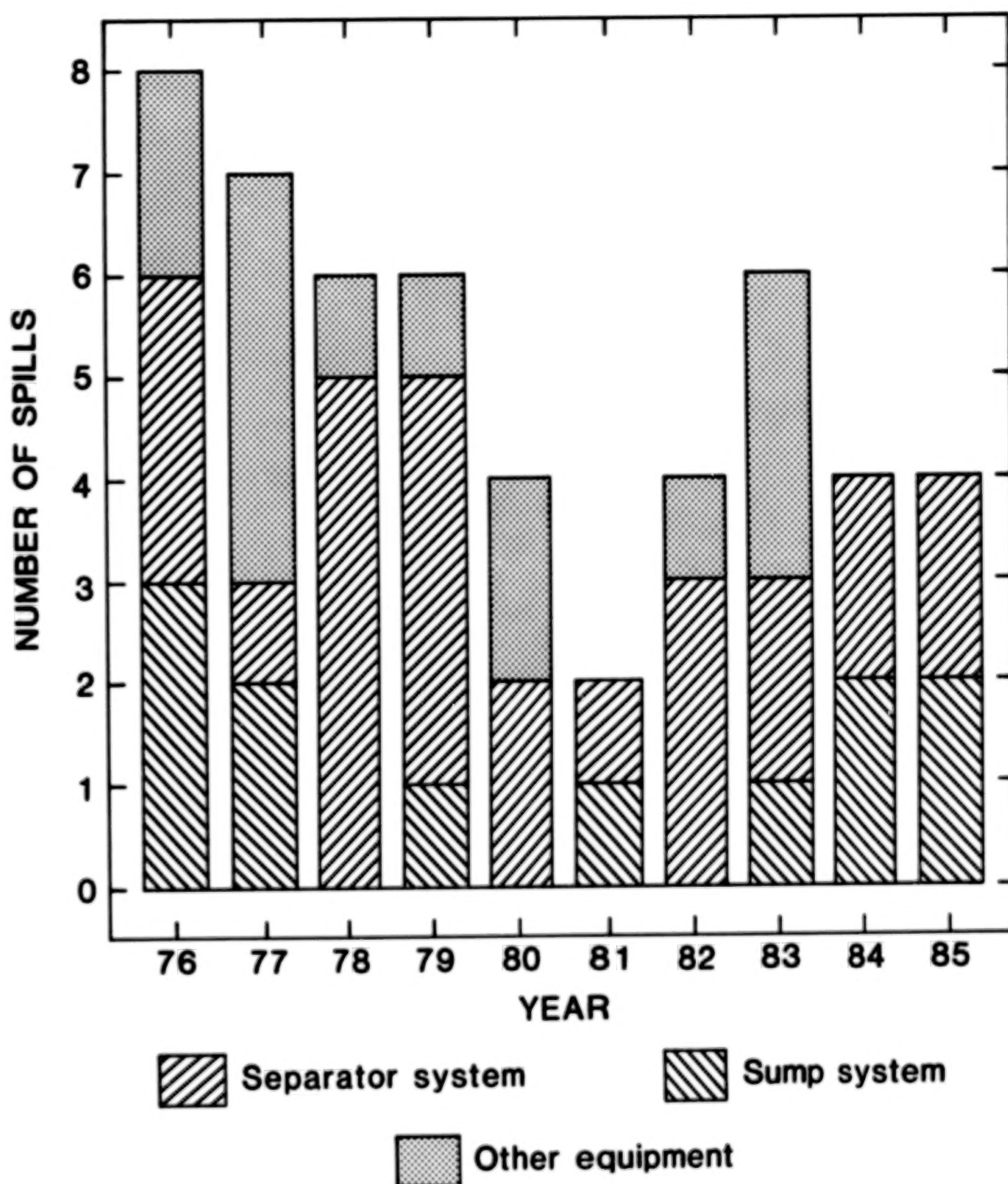


Figure 7.--Number of spills of 1-50 barrels involving failures of high-low level controls on production platforms, by year, Gulf of Mexico, 1976-85.

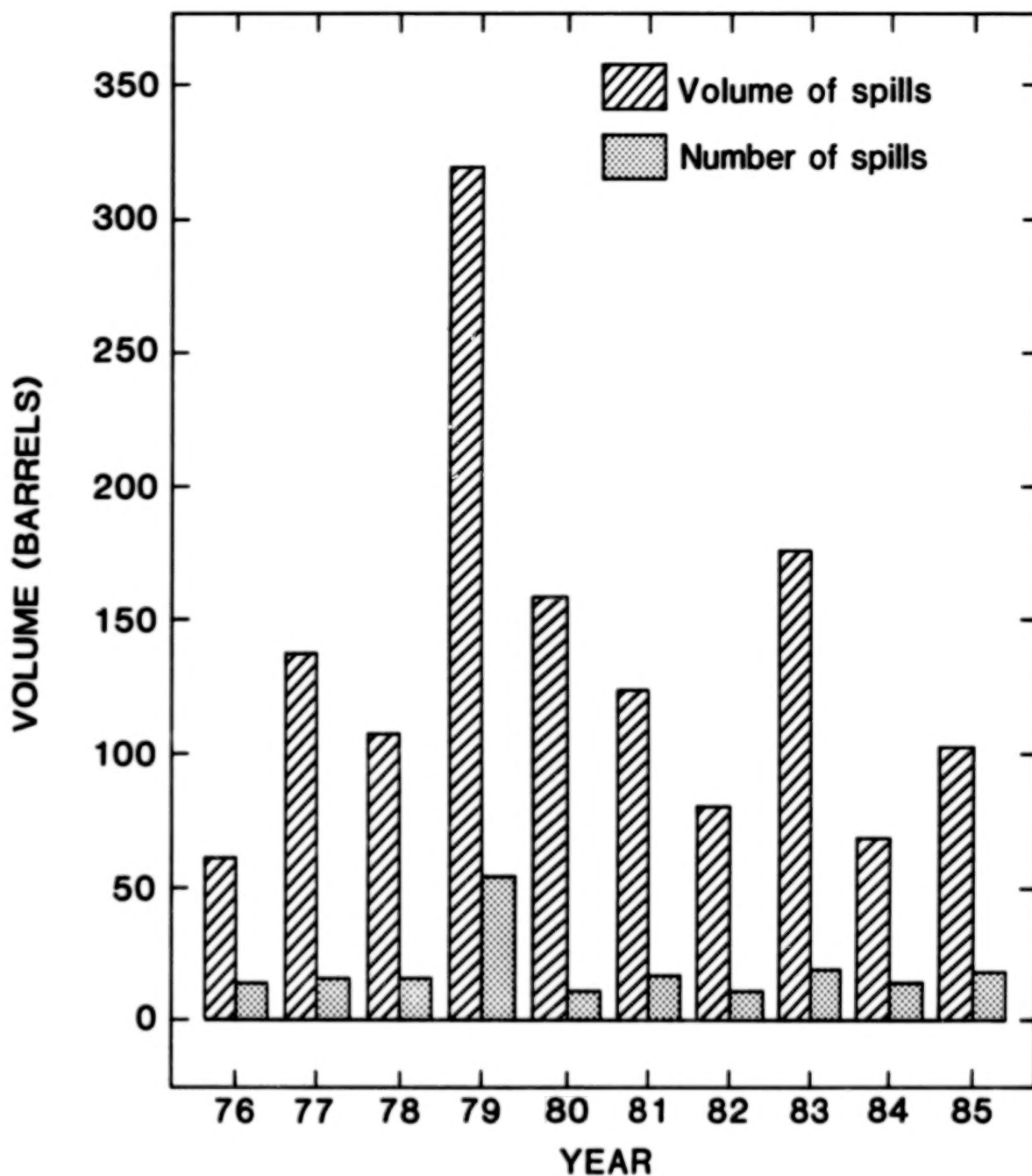


Figure 8.—Number and volume of spills 1-50 barrels by year, for pipelines and pumps, Gulf of Mexico, 1976-85.

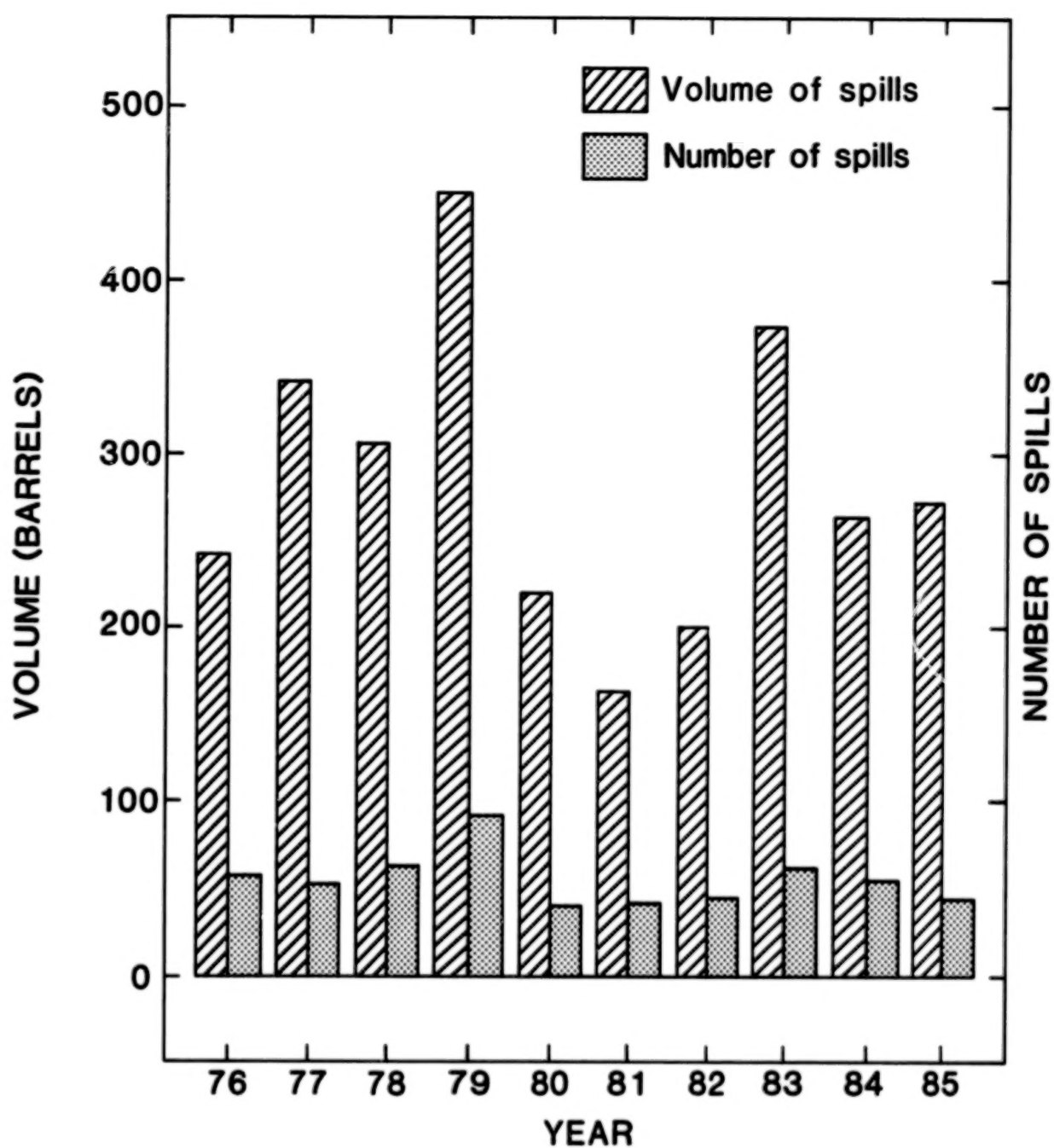


Figure 9.--Number and volume of spills 1-50 barrels, by year, for production platforms, Gulf of Mexico, 1976-85.

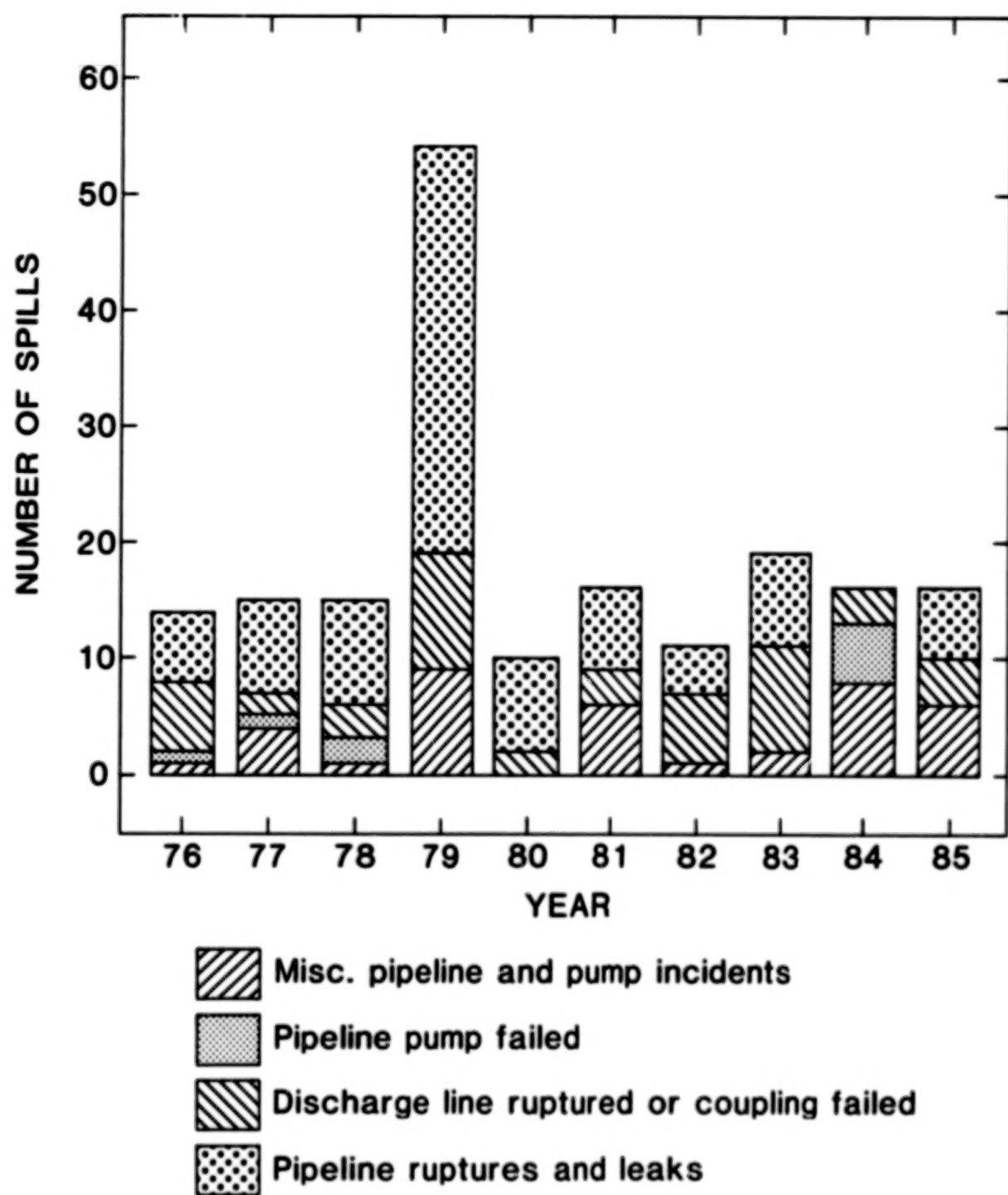


Figure 10.--Principal causes of pipeline and pump spills of 1-50 barrels, by year and number of spills, Gulf of Mexico, 1976-85.

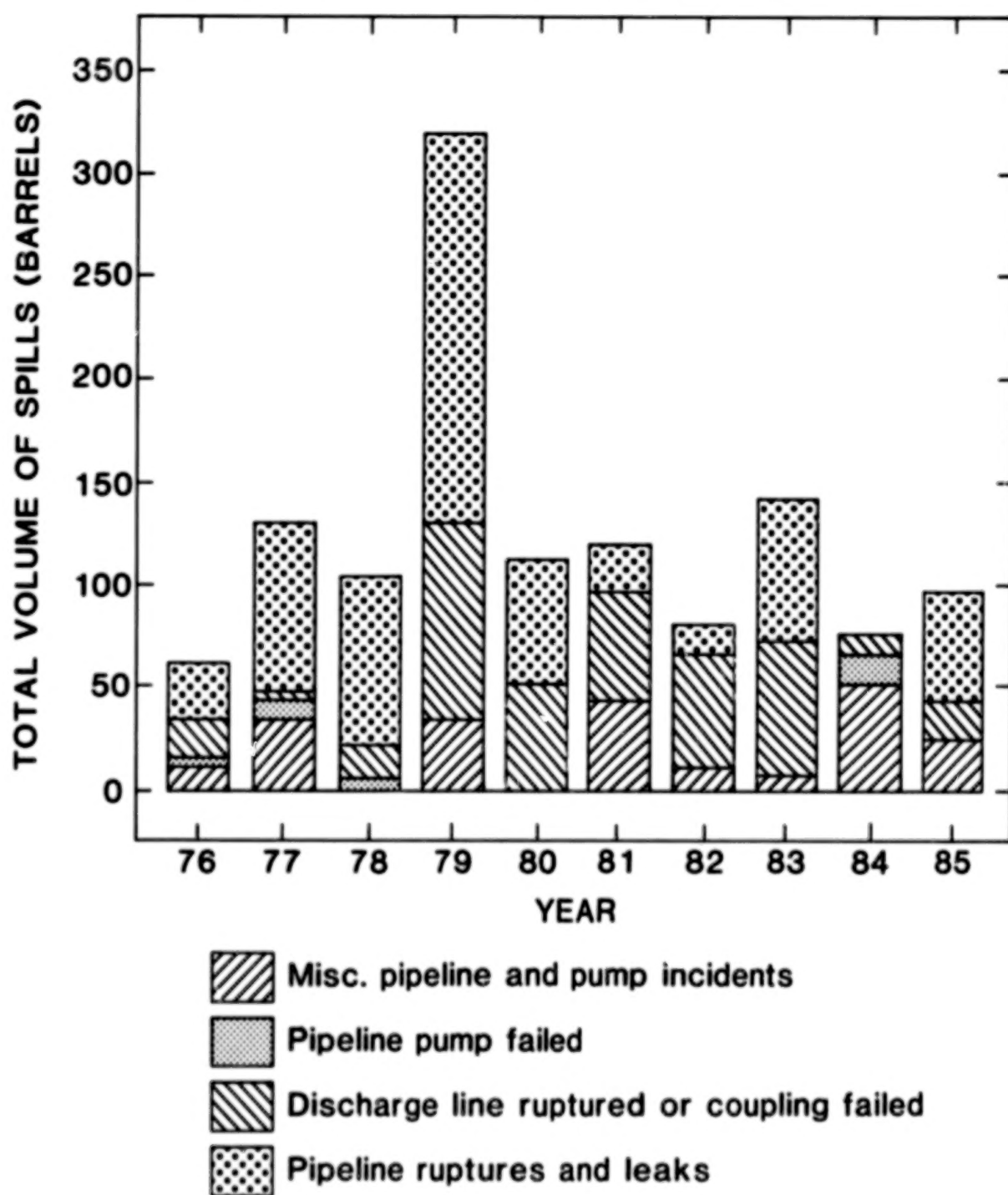


Figure 11.--Principal causes of pipeline and pump spills of 1-50 barrels, by year and volume of spills, Gulf of Mexico, 1976-85.

Table 16.--Causes of spills of 1-50 barrels from pipeline
and pumps, Gulf of Mexico, 1976-85

Cause	Number of occurrences	Volume (barrels)	Volume per spill (barrels)		
			Average	Maxi- mum	Mini- mum
Pipeline ruptured	10	54	5.4	15.0	1.5
Pipeline leaked	75	453	6.0	50.0	2.0
Pipeline pump failed	7	27	3.9	10.0	1.5
Pump capacity exceeded	1	2	2.5	2.5	2.5
Discharge or transfer line ruptured or coupling failed	17	95	5.6	28.0	1.1
Pig trap leaked	2	53	26.5	46.0	7.0
Fuel line leaked	1	36	35.7	35.7	35.7
Other	29	183	6.3	30.0	1.3

Table 17.--Frequency of blowouts by type operation,
Gulf of Mexico, 1976-85

Blowouts by type operations	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	TOTAL
Production	1	0	2	0	2	0	0	1	0	1	7
Drilling	5	4	7	5	5	4	8	10	4	2	54
Completion and workovers	0	5	0	0	1	5	1	1	0	1	14
Other <u>1/</u>	0	0	2	0	0	0	0	0	0	0	2
TOTAL	6	9	11	5	8	9	9	12	4	4	77

1/ Other means those different than the ones listed in table.

Table 18.--Input of petroleum hydrocarbons into the marine environment (MTA)

Source	Probable range	Best estimate	Percentage of total
Natural sources.....			
Marine seeps.....	0.02-2.0	0.2	
Sediment erosion.....	0.005-0.5	0.05	
(Total natural sources).....	(0.025)-(2.5)	(0.25)	7.7
Offshore production.....	0.04-0.06	0.05	1.6
Transportation.....	--	--	
Tanker operations.....	0.4-1.5	0.7	
Dry-docking.....	0.02-0.05	0.03	
Marine terminals.....	0.01-0.03	0.02	
Bilge and fuel oils.....	0.2-0.6	0.3	
Tanker accidents.....	0.3-0.4	0.4	
Nontanker accidents.....	0.02-0.04	0.02	
(Total transportation).....	(0.95)-(2.62)	(1.47)	45.2
Atmosphere.....	0.05-0.5	0.3	9.2
Municipal and industrial.....	--	--	
wastes and runoff.....	--	--	
Municipal wastes.....	0.4-1.5	0.7	
Refineries.....	0.06-0.6	0.1	
Nonrefining.....	--	--	
industrial wastes.....	0.1-0.3	0.2	
Urban runoff.....	0.01-0.2	0.12	
River runoff.....	0.01-0.5	0.04	
Ocean dumping.....	0.005-0.02	0.02	
(Total wastes and runoff).....	(0.585)-(3.12)	(1.18)	36.3
Total	1.7-8.8	3.25	100.0

Source: National Academy of Sciences

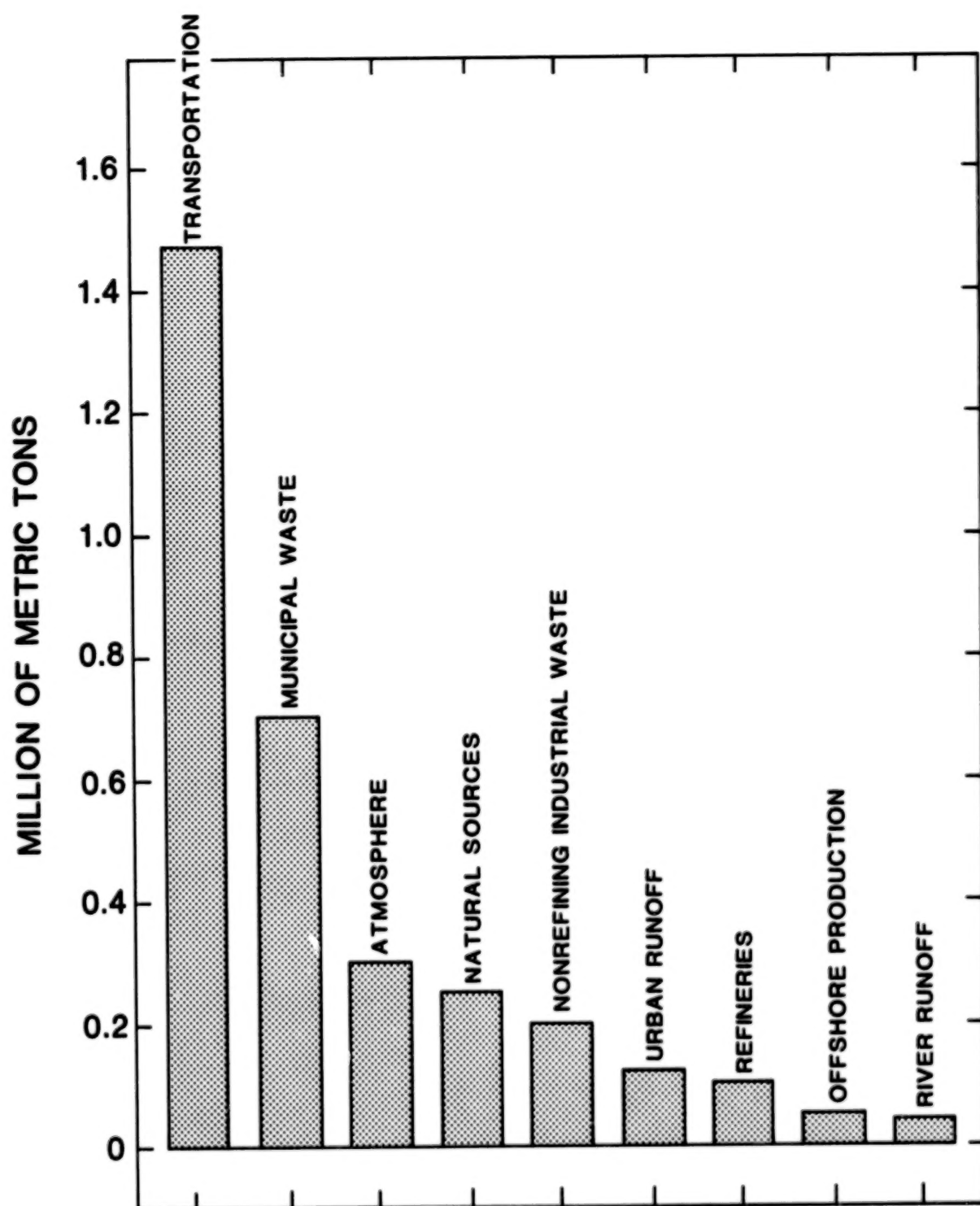


Figure 12.—Estimated volumes of petroleum hydrocarbons introduced annually into the world's oceans, in millions of metric tons. Numerical breakdown of categories is shown in table 18.

Table 19.--Production of crude and condensate for
1985, by operator as shown in table 20

Operator	Production (barrels)	Operator	Production (barrels)
Aminoil Development Inc.	--	Oxy Petroleum, Inc.	--
Aminoil Inc.	--	Pennzoil Co.	12,452,186
Amoco Production Co.	701,198	Phillips Petroleum Co.	1,100,396
Anadarko Production Co.	,669,589	Placid Oil Co.	7,646,840
Atlantic Richfield Co.	16,925,222	Shell Offshore Inc.	58,726,987
CNG Producing Co.	3,915,924	Signal Oil and Gas Co.	--
Chevron U.S.A. Inc.	52,908,974	Sohio Petroleum Co.	2,220,604
Cities Services Oil and Gas Corp.	547,076	Southern Natural Gas Co.	18,158,196
Conoco Inc.	27,039,952	Sun Exp. and Prod. Co.	3,546,663
Corpus Christi Oil and Gas Co.,	14,892	Superior Oil Co.	1,986,771
Exxon Corp., U.S.A.	33,914,935	Taylor Energy Co.	251,848
Forest Oil Corp.	493,438	Temple Drilling Co.	--
General American Oil Co. of Texas	--	Tenneco Oil Co.	18,158,196
Getty Oil Co.	102,866	Texaco Inc.	17,570,585
Gulf Oil Corp.	127,580	Texas Gas Exploration Co.	
Hunt Oil Co.	379,397	Texoma Production Co.	1,738,201
J.F.D. Inc.	--	Transco Exploration Co.	--
JFD Petroleum Inc.	--	Transocean Oil Inc.	--
Kerr-McGee Corp.	5,815,987	Union Oil Co. of California	1,117,635
Marathon Oil Co.	16,768,019		
McMoran Offshore Production Co.	40,029		
Mobil Oil E & P Southeast Inc.	10,859,337		
Mobil Oil Prod. Tx. & N.M. Inc.	4,112,490		
Odeco Oil and Gas Co.	6,913,438		
Odeco, Inc.			

Table 20.—Production-platform spills greater than 1 barrel of crude and condensate, identified by operator, Gulf of Mexico, 1976-85.

Operator	1976 # VOL	1977 # VOL	1978 # VOL	1979 # VOL	1980 # VOL	1981 # VOL	1982 # VOL	1983 # VOL	1984 # VOL	1985 # VOL
Aminco Development Inc.....	0 0	0 0	0 0	0 0	0 0	0 0	0 0	1 8	0 0	0 0
Aminco Inc.....	0 0	0 0	0 0	1 2	0 0	0 0	0 0	0 0	1 2	0 0
Amoco Production Co.....	2 6	2 6	3 905	3 14	0 0	5 15	3 9	0 0	2 4	3 48
Anadarko Production Co.....	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	1 66
Atlantic Richfield Co.....	0 0	0 0	2 6	2 10	0 0	0 0	0 0	4 12	2 8	0 0
CNG Producing Co.....	0 0	0 0	0 0	1 4	0 0	0 0	0 0	0 0	0 0	0 0
Chevron U.S.A. Inc.....	4 16	3 314	2 6	2 4	0 0	1 2	0 0	2 22	0 0	6 30
Cities Services Oil & Gas Corp.....	0 0	0 0	0 0	2 12	2 26	0 0	0 0	1 2	0 0	2 8
Conoco Inc.....	8 40	6 28	7 128	11 70	3 10	5 14	4 10	3 10	3 56	1 5
Corpus Christi Oil & Gas Co.....	0 0	0 0	0 0	0 0	0 0	0 0	1 2	0 0	0 0	0 0
Exxon Corp., U.S.A.....	2 16	2 8	0 0	4 16	4 74	0 0	1 2	1 46	1 4	0 0
Forest Oil Corp.....	1 12	1 2	1 2	0 0	0 0	0 0	0 0	0 0	0 0	1 2
General American Oil Co. of Texas.....	0 0	1 4	0 0	1 4	0 0	0 0	0 0	0 0	0 0	0 0
Getty Oil Co.....	0 0	0 0	0 0	1 13	2 8	0 0	0 0	0 0	0 0	0 0
Gulf Oil Corp.....	8 520	4 20	5 11	11 38	2 8	2 4	4 8	7 34	3 7	0 0
Hunt Oil Co.....	0 0	0 0	1 2	0 0	0 0	0 0	0 0	0 0	1 10	0 0
J.F.D. Inc.....	0 0	0 0	1 10	0 0	0 0	0 0	0 0	0 0	1 6	0 0
JFD Petroleum Inc.....	0 0	0 0	1 136	0 0	0 0	0 0	0 0	0 0	0 0	0 0
Kerr-McGee Corp.....	0 0	0 0	1 6	1 2	1 4	0 0	0 0	0 0	2 4	1 3
Marathon Oil Co.....	2 4	6 22	3 54	3 26	2 8	2 84	3 10	3 18	4 14	5 12
McMoran Offshore Production Co.....	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	1 2
Mobil Oil E & P Southeast Inc.....	0 0	0 0	0 0	0 0	0 0	2 4	2 8	4 28	3 10	3 15
Mobil Oil Prod. Tx. & N.M. Inc.....	2 8	4 44	3 8	0 0	0 0	0 0	0 0	1 3	0 0	0 0
Odeco Oil & Gas Co.....	0 0	0 0	4 23	5 10	3 8	4 66	0 0	0 0	1 4	0 0
Odeco, Inc.....	1 2	2 8	0 0	2 20	0 0	0 0	0 0	0 0	0 0	0 0
Oxy Petroleum, Inc.....	0 0	0 0	0 0	1 12	0 0	0 0	0 0	0 0	0 0	0 0
Pennzoil Co.....	1 4000	2 26	2 4	4 8	2 102	1 2	0 0	1 2	1 2	7 58
Phillips Petroleum Co.....	0 0	0 0	0 0	0 0	0 0	0 0	0 0	1 6	0 0	1 3
Placid Oil Co.....	2 4	5 52	6 32	4 11	2 4	0 0	0 0	1 25	0 0	0 0
Shell Offshore Inc.....	13 58	6 34	4 12	11 152	2 6	4 14	5 23	3 10	5 38	2 321
Signal Oil and Gas Co.....	1 4	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0
Sohio Petroleum Co.....	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	1 4	0 0
Southern Natural Gas Co.....	0 0	0 0	0 0	1 2	0 0	0 0	0 0	0 0	0 0	0 0
Sun Exp. and Prod. Co.....	0 0	0 0	0 0	0 0	0 0	0 0	1 2	0 0	2 5	0 0
Superior Oil Co.....	0 0	0 0	0 0	0 0	2 8	1 4	3 8	4 10	0 0	0 0

**Table 20.--Production-platform spills greater than 1 barrel of crude and condensate, identified by operator,
Gulf of Mexico, 1976-85.--continued**

Taylor Energy Co.....	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	
Temple Drilling Co.....	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	
Tenneco Oil Co.....	3	8	3	8	3	14	4	19	7	38	5	24	2	4	7	16	8	30	1	2
Texaco Inc.....	3	10	0	0	2	4	3	6	2	1460	0	0	1	2	2	82	1	6	1	2
Texas Gas Exploration Co.....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	6	0	0
Texoma Production Co.....	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0
Transco Exploration Co.....	0	0	0	0	0	0	0	0	0	0	1	6	0	0	0	0	0	0	0	0
Transocean Oil Inc.....	1	2	0	0	1	4	0	0	1	4	1	2	0	0	0	0	0	0	0	0
Union Oil Co. of California.....	4	18	3	16	6	18	4	20	2	10	4	36	4	12	6	22	3	10	1	2
Unknown.....	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0
Unknown.....	0	0	1	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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